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August 31, 2020

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T 508-856-032

F 508-856-0357

Zoning Board of Appeals

gravesengineering.com

Grafton Zoning Board of Appeals
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

**Subject: Elmrock Estates Subdivision in Grafton, Massachusetts
Updated Engineer's Opinion Construction Cost Estimates**

Dear Board Members:

Per the request of the Applicant, Graves Engineering, Inc. (GEI) has calculated an updated "work remaining" construction cost estimate for the Elmrock Estates Subdivision in Grafton, Massachusetts. This estimate supersedes our previous estimate dated January 15, 2020.

Please find attached the point-by-point totals of the "work remaining" and "100% cost-to-construct" cost estimates with the following assumptions:

- The estimates are based upon the plan set entitled "'Elmrock Estates" A Comprehensive Permit Plan, Grafton, Massachusetts" dated August 30, 2016 and last revised September 27, 2018, prepared by Andrews Survey & Engineering, Inc.
- The estimates include work associated with road and infrastructure construction. The estimates do not include any of the proposed work associated with lot development.
- Site visits were performed by GEI through August 21, 2020 to determine work remaining.
- There has been a 20% administration and contingency added to the "work remaining" estimate for inspections, contract administration and inflation.

The purpose of our construction cost estimates is to provide the Grafton Zoning Board of Appeals with an "engineer's opinion" of the possible construction value for the project. Our estimates are based upon typical municipally-bid public works projects subject to state wage rates. We use state wage rates as the municipality will be required to pay prevailing state wage rates should they ultimately become responsible for completing the project. The rates indicated within this estimate reflect current market conditions.

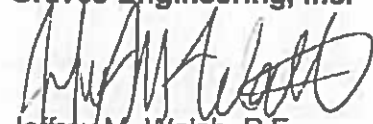
In addition, the construction estimate should not be construed to be a final punch list of items that are not complete. At each drawdown requested by the developer, individual line items will be evaluated for completeness, unit prices for each item revised to reflect the current cost of work, and additional items added or deleted from the estimate, if needed. Streets and applicable amenities are not considered complete until a determination is made by the Grafton Zoning Board of Appeals.

1. Surety = $\$193,681 + 0.2 * (\$1,617,266 - \$193,681) = \$478,398$.
Say \$478,400 (rounded).

2. We understand that final determination of the surety amount is at the discretion of the approving authority.

If you have any questions or comments concerning this cost estimate, please feel free to contact our office.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal

Attachments:
Engineer's Opinion Construction Cost Estimate

cc: Grafton Planning Department
Phil Corraio; Eastland Partners
Stephen O'Connell; Turning Point Engineering



100 GROVE ST. | WORCESTER, MA 01605

T 508-856-0321

F 508-856-0357

gravesengineering.com

**SITE DEVELOPMENT/SUBDIVISION
CONSTRUCTION BUDGET**

**PROJECT: ELMROCK ESTATES
DEBORAH JEAN DRIVE STATION 0+00 TO 12+25.29**

DATE: August 31, 2020

Budgets of work for the entire project and for work yet to be completed.

The following construction budget is based upon the Definitive Plan last revised: **09/27/18**

This estimate is based upon site visits performed through: **08/21/20**

	UNITS	\$/UNIT	100% COST ESTIMATE QUANTITY	VALUE	CONSTRUCTION REMAIN'G QUANTITY	08/21/20 VALUE
RIGHT OF WAY						
Clear & Grub	Acres	\$15,000.00	1.3	\$19,995.00	0	\$0.00
Finish Grading (Grass plots only)	Sq. Yds.	\$3.00	1,110	\$3,328.56	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	1,280	\$3,838.56	780	\$2,340.00
Hydroseeding	Sq. Yds.	\$2.00	1,280	\$2,560.00	780	\$1,560.00
Trees	Each	\$400.00	57	\$22,800.00	29	\$11,600.00
ROADWAY						
Prep Subgrade	Sq. Yds.	\$5.00	4,180	\$20,900.00	0	\$0.00
Gravel Base (12")	Cu. Yds.	\$45.00	1,376	\$61,920.00	0	\$0.00
Fine Grade & Roll	Sq. Yds.	\$5.00	4,180	\$20,900.00	0	\$0.00
Binder Course (2.75" Compacted Thk'ness)	Tons	\$105.00	591	\$62,055.00	0	\$0.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$105.00	322	\$33,810.00	322	\$33,810.00
Granite Transition Pieces	Each	\$300.00	36	\$10,800.00	0	\$0.00
Granite Curb Inlets	Each	\$400.00	18	\$7,200.00	0	\$0.00
Vertical Granite Curb	Lin. Ft.	\$45.00	80	\$3,600.00	0	\$0.00
Bituminous Concrete Curbing	Lin. Ft.	\$9.50	808	\$7,676.00	250	\$2,375.00
Cape Cod Berm	Lin. Ft.	\$9.50	877	\$8,331.50	300	\$2,850.00
Street Lights	Each	\$3,000.00	3	\$9,000.00	3	\$9,000.00
Raise Structures (Sewers, Drains, etc.)	Each	\$425.00	51	\$21,675.00	44	\$18,700.00
Asphalt Emulsion (Tack Coat)	Gal.	\$8.00	207	\$1,656.00	207	\$1,656.00
Street Sign	Each	\$100.00	1	\$100.00	0	\$0.00
SITE WORK						
Clear & Grub (slopes outside ROW)	Acres	\$15,000.00	0.6	\$9,300.00	0	\$0.00
Finish Grading (slopes outside ROW)	Sq. Yds.	\$3.00	2,880	\$8,640.00	0	\$0.00
Spread Loam (slopes outside ROW)	Sq. Yds.	\$3.00	2,480	\$7,440.00	1,390	\$4,170.00
Hydroseeding (slopes outside ROW)	Sq. Yds.	\$2.00	2,480	\$4,960.00	1,390	\$2,780.00
SIDEWALK						
Prep Subgrade	Sq. Yds.	\$5.00	815	\$4,075.00	455	\$2,275.00
Gravel Base (8")	Cu. Yds.	\$45.00	181	\$8,145.00	100	\$4,500.00
Fine Grade & Roll	Sq. Yds.	\$5.00	815	\$4,075.00	455	\$2,275.00
Top Course (1.5" Compacted Thk'ness)	Tons	\$150.00	67	\$10,050.00	37	\$5,550.00
Binder Course (1.5" Compacted Thk'ness)	Tons	\$150.00	67	\$10,050.00	37	\$5,550.00
DRAINAGE						
12" HDPE	Lin. Ft.	\$80.00	452	\$36,160.00	0	\$0.00
15" HDPE	Lin. Ft.	\$90.00	393	\$35,370.00	0	\$0.00
18" HDPE	Lin. Ft.	\$90.00	85	\$7,650.00	0	\$0.00
24" HDPE	Lin. Ft.	\$120.00	371	\$44,520.00	0	\$0.00
36" HDPE	Lin. Ft.	\$190.00	216	\$41,097.00	0	\$0.00

	UNITS	\$/UNIT	100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G QUANTITY	08/21/20 VALUE
Drain Manholes	Each	\$4,000.00	19	\$76,000.00	0	\$0.00
Drain Invert (Concrete or Brick)	Each	\$300.00	19	\$5,700.00	19	\$5,700.00
Catch Basins	Each	\$3,700.00	6	\$22,200.00	0	\$0.00
Catch Basin Frame & Grate	Each	\$900.00	6	\$5,400.00	0	\$0.00
Drain Manhole Rim & Cover (24")	Each	\$825.00	19	\$15,675.00	15	\$12,375.00
Double Catch Basins	Each	\$3,900.00	12	\$46,800.00	0	\$0.00
Double Catch Basins Frame & Grate	Each	\$1,500.00	12	\$18,000.00	0	\$0.00
36" HDPE (FES-1 Connection)	Lin. Ft.	\$190.00	50	\$9,500.00	0	\$0.00
36" HDPE Flared End Section	Each	\$1,187.50	1	\$1,187.50	0	\$0.00
24" HDPE Flared End Section	Each	\$1,200.00	1	\$1,200.00	0	\$0.00
15" HDPE Flared End Section	Each	\$875.00	1	\$875.00	0	\$0.00
INFILTRATION BASIN #1						
Common Fill (Top of Berm)	Cu. Yds.	\$6.00	630	\$3,780.00	0	\$0.00
Finish Grading	Sq. Yds.	\$5.00	3,270	\$16,350.00	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	3,270	\$9,810.00	0	\$0.00
Hydroseeding	Sq. Yds.	\$2.00	3,270	\$6,540.00	0	\$0.00
24" HDPE Flared End Section	Each	\$1,200.00	3	\$3,600.00	0	\$0.00
24" HDPE (FES Connections)	Lin. Ft.	\$120.00	100	\$12,000.00	0	\$0.00
Rip-Rap	Cu. Yds.	\$88.00	130	\$11,440.00	0	\$0.00
Gabion Forebay	Cu. Yds.	\$88.00	6	\$488.40	0	\$0.00
Gravel (Access Road)	Cu. Yds.	\$45.00	70	\$3,150.00	0	\$0.00
INFILTRATION BASIN #2						
Common Fill (Top of Berm)	Cu. Yds.	\$6.00	590	\$3,540.00	0	\$0.00
Finish Grading	Sq. Yds.	\$5.00	1,230	\$6,150.00	0	\$0.00
Spread Loam	Sq. Yds.	\$3.00	1,060	\$3,180.00	0	\$0.00
Hydroseeding	Sq. Yds.	\$2.00	1,060	\$2,120.00	0	\$0.00
18" HDPE Flared End Section	Each	\$900.00	2	\$1,800.00	0	\$0.00
18" HDPE (FES Connections)	Lin. Ft.	\$90.00	62	\$5,580.00	0	\$0.00
Rip-Rap	Cu. Yds.	\$88.00	226	\$19,899.44	0	\$0.00
Gabion Forebay	Cu. Yds.	\$88.00	6	\$484.00	0	\$0.00
Gravel (Access Road)	Cu. Yds.	\$45.00	123	\$5,528.70	123	\$5,535.00
FES-5 LEVEL SPREADER						
24" HDPE Flared End Section	Each	\$1,200.00	1	\$1,200.00	0	\$0.00
24" HDPE (FES Connections)	Lin. Ft.	\$120.00	50	\$6,000.00	0	\$0.00
Rip-Rap	Cu. Yds.	\$88.00	46	\$4,021.60	0	\$0.00
Finish Grading	Sq. Yds.	\$5.00	88	\$438.85	0	\$0.00
WATER						
8" DI Pipe	Lin. Ft.	\$120.00	1,240	\$148,800.00	0	\$0.00
Hydrants	Each	\$5,000.00	3	\$15,000.00	0	\$0.00
Water Service	Each	\$3,400.00	29	\$98,600.00	0	\$0.00
Water Gates & Box (8-inch)	Each	\$2,150.00	3	\$6,450.00	0	\$0.00
SEWER						
8" SDR 35 Sewer	Lin. Ft.	\$100.00	1,700	\$170,000.00	0	\$0.00
Manholes	Each	\$4,500.00	14	\$63,000.00	0	\$0.00
Laterals: 6" SDR 35 PVC	Each	\$2,500.00	29	\$72,500.00	0	\$0.00
Sewer Brick Invert	Each	\$400.00	14	\$5,600.00	0	\$0.00
Sewer Manhole Rim & Cover (30")	Each	\$950.00	14	\$13,300.00	0	\$0.00
SEDIMENT AND EROSION CONTROLS						
Silt Fence & Straw Wattle - Install	Lin. Ft.	\$8.00	2,300	\$18,400.00	0	\$0.00
Silt Fence & Straw Wattle - Maintain	Lin. Ft.	\$4.00	0	\$0.00	1,300	\$5,200.00

	UNITS	\$/UNIT	100% COST ESTIMATE		CONSTRUCTION	
			QUANTITY	VALUE	REMAIN'G QUANTITY	08/21/20 VALUE
ELECTRIC COMMUNICATIONS						
Electrical/CATV/Tel Conduit	Lin.Ft.	\$60.00	1,330	\$79,800.00	0	\$0.00
MISCELLANEOUS						
Bounds, Granite (Roadway)	Each	\$550.00	14	\$7,700.00	5	\$2,750.00
Bounds, Granite (Easements)	Each	\$550.00	44	\$24,200.00	15	\$8,250.00
Acceptance Plans	Sheet	\$1,500.00	2	\$3,000.00	2	\$3,000.00
As Built Plans	Sheet	\$1,900.00	4	\$7,600.00	4	\$7,600.00
Subtotal:				\$1,617,266.11		\$161,401.00
20% Contingency/Inflation:						\$32,280.20
PROJECT: ELMROCK ESTATES						\$193,681.20
TOTAL:						\$194,000.00
TOTAL (Rounded):					*	\$194,000.00
20% of "100% COST ESTIMATE" (Rounded):				*	\$323,000.00	
* This estimate was prepared to assist the Zoning Board of Appeals with establishing the amount of surety for this project. In accordance with Grafton Subdivision Rules and Regulations, the surety value established by the Board may vary from this estimate.						